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H4J JK J36Q

(56) Documents Cited

JP 100215302 A JP 090062198 A JP 050130193 A

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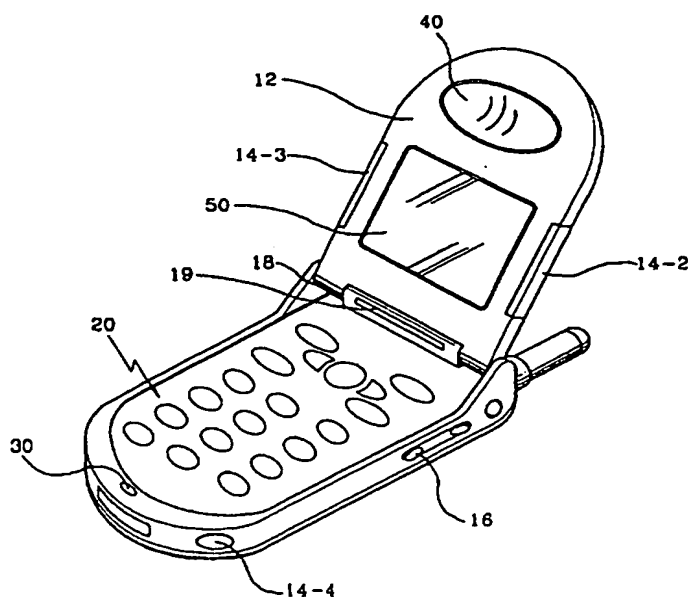
(54) Abstract Title

Cellular phone with lamps

(57) A cellular phone equipped with a plurality of lamps, including a first set of lamps 14-2, 14-3, 14-4 which may be used to illuminate business cards, memos and the like, a second lamp 15 (see Figs. 2 and 6) which can be used as a flashlight and a third lamp 19 which illuminates the phone's keyboard, simplifying the structure and reducing the thickness of the phone in comparison to backlit keyboards. These lamps operate in response to the illuminating button 16 and a detector for the open/closed position of the phone's flip.

In another embodiment the phone also incorporates an illuminance detector to suppress operation of the lamps in the presence of sufficient levels of ambient light.

FIG.3



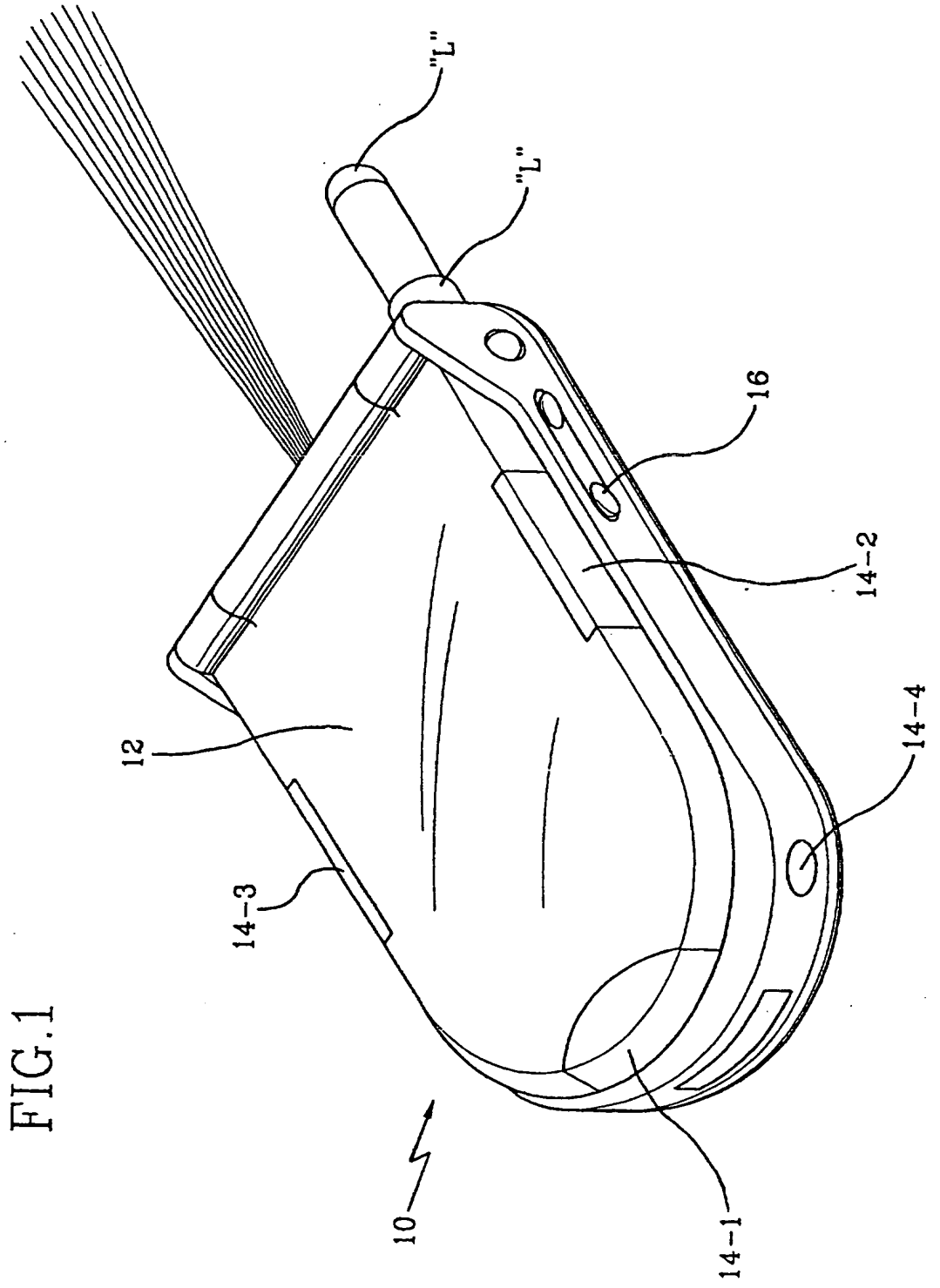


FIG. 1

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FIG.2

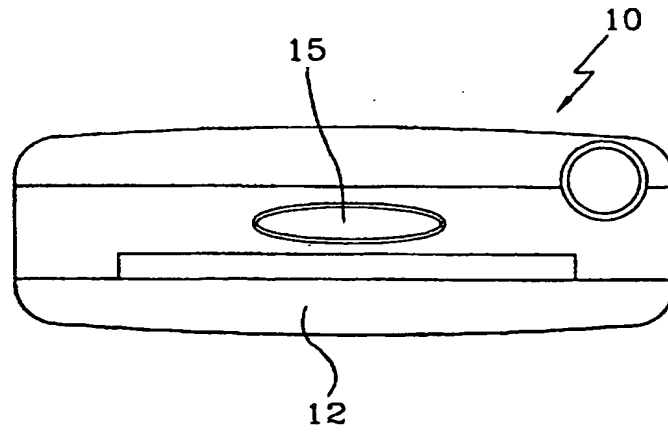


FIG.3

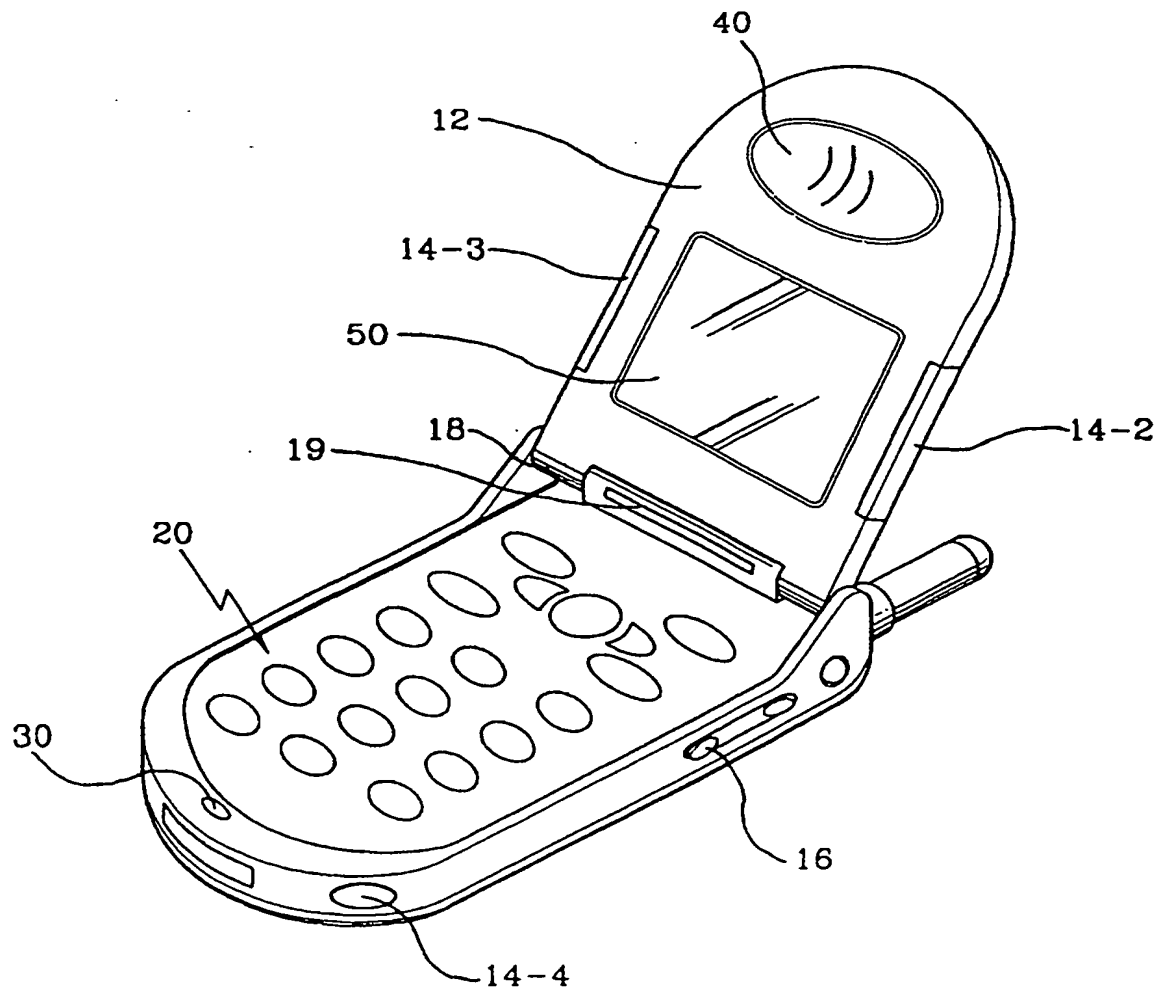


FIG. 4

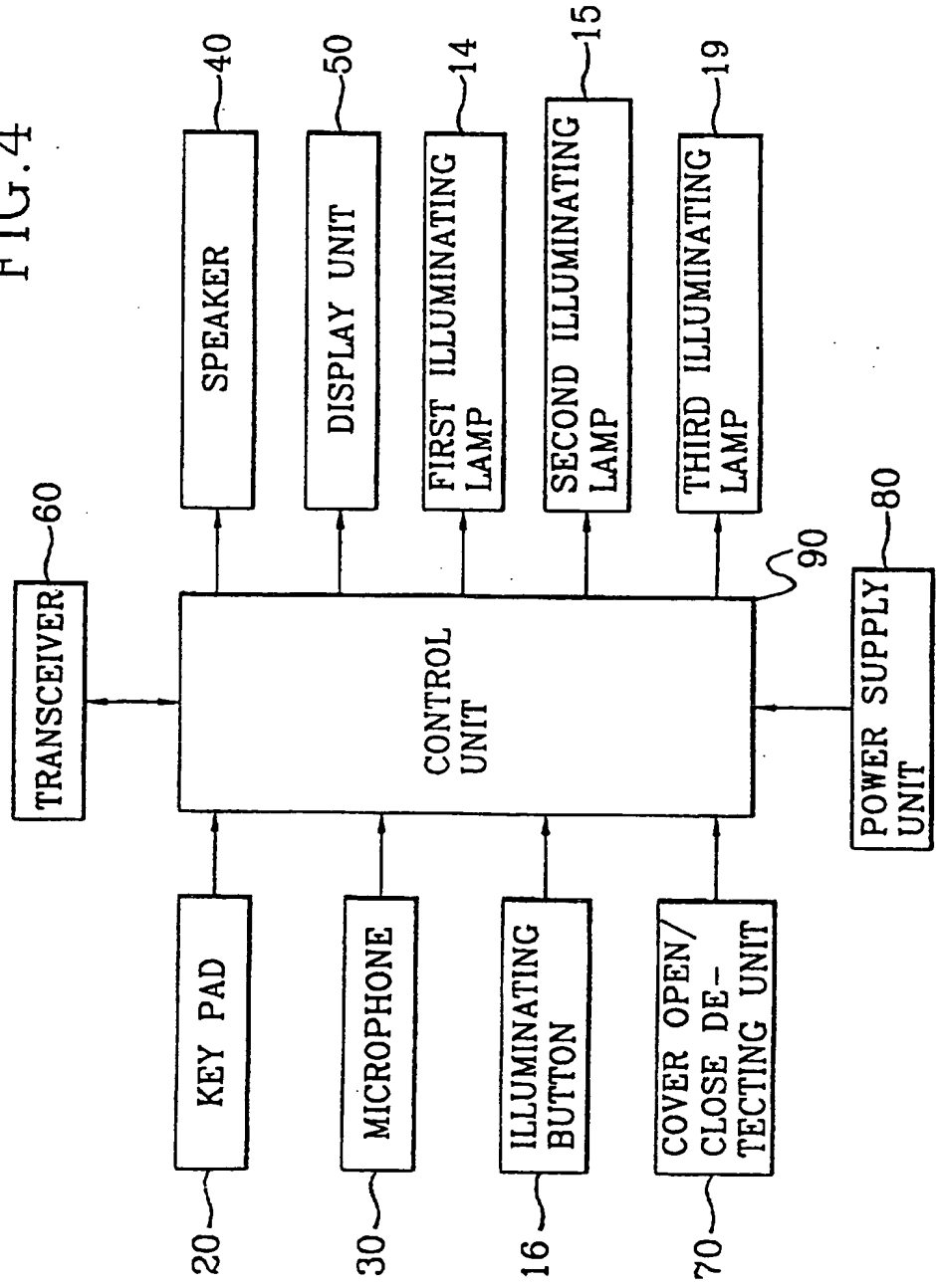
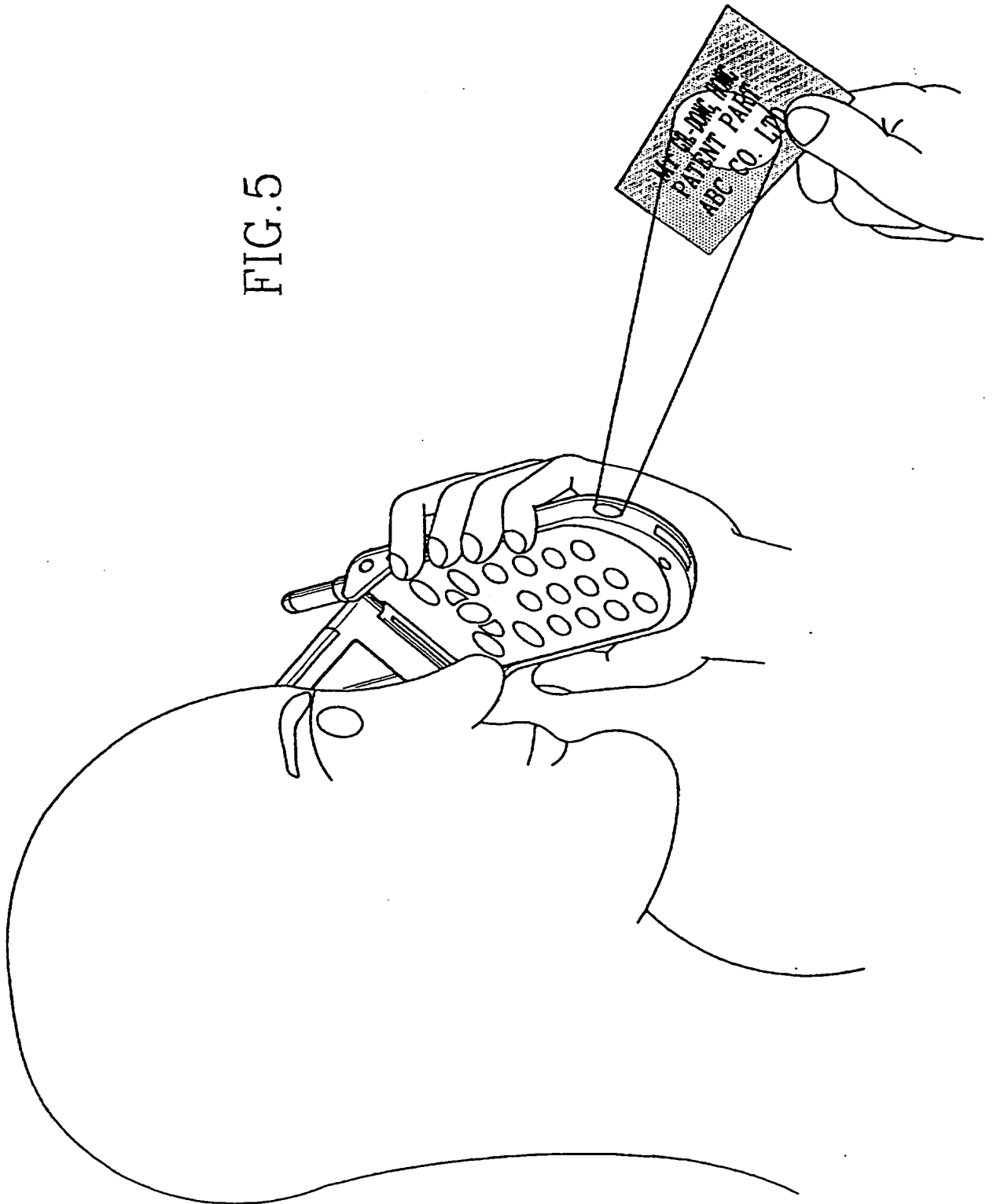


FIG.5



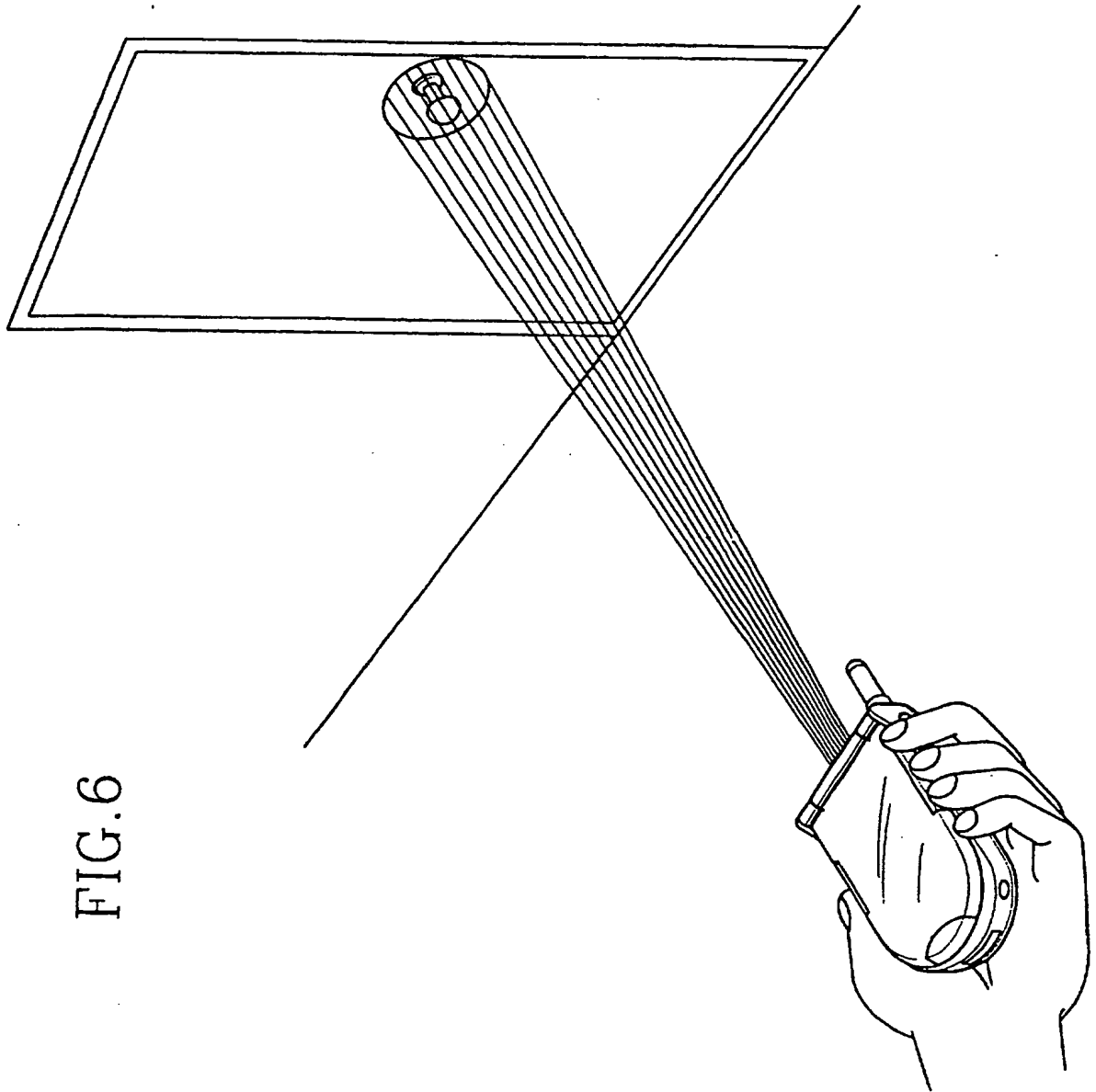


FIG.6

FIG.7



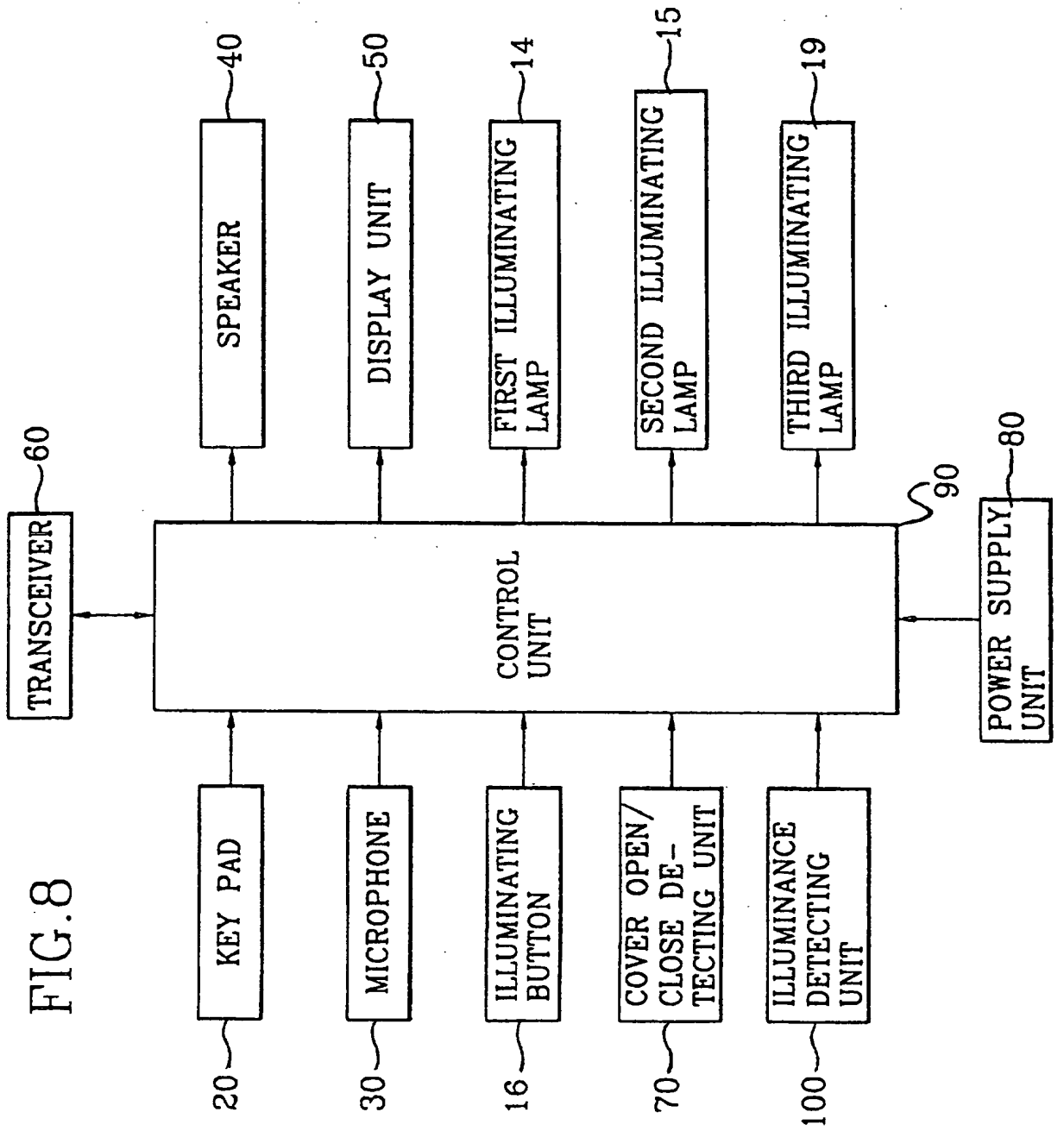


FIG. 8

CELLULAR PHONE WITH LAMPS

BACKGROUND OF THE INVENTION

FIELD OF THE INVENTION

The present invention relates to a cellular phone, and more particularly
5 to a cellular phone with lamps for use as a memorandum reading lamp and a
flash light function.

DESCRIPTION OF THE PRIOR ART

Recently, cellular phones come into wide use rapidly such that tendency
is that almost everybody has one cellular phone these days. The cellular phones
10 perform communication by radio to allow a holder of the cellular phone to
communicate while driving or walking.

SUMMARY OF THE INVENTION

However, there is a problem in the cellular phones according to the prior
art in that only communicating function is generally found in the cellular phones
15 while there is posed a difficulty for a holder to read telephone numbers written
on a memorandum pad or on a name card in a dark area.

Furthermore, there is another problem in the cellular phones according
to the prior art in that lamps are provided underneath each button of a key pad
for lighting the key pad, such that structure thereof is very complicated and
20 manufacturing process also involves lots of complication. There is still another
problem in that the cellular phones gets thicker due to mounted lamp.

The present invention is disclosed to solve the aforementioned problems
and it is an object of the present invention to provide a cellular phone with lamps
for use as a memorandum reading lamp and a flash light function by installing

an illuminating lamp for an outside lighting.

It is another object of the present invention to provide a cellular phone with lamps for use as a flash by installing an illuminating lamp for an outside lighting.

5 It is still another object of the present invention to provide a cellular phone with lamps for pad, thereby simplifying the structure thereof and reducing thickness thereof.

In accordance with one object of the present invention, there is provided a cellular phone with lamps, the cellular phone comprises an illuminating lamp
10 mounted on outside surface of a body thereof, an illuminating button for lighting on and off the illuminating lamp, a power supply unit for supplying a power to the illuminating lamp, and a control unit for supplying a power to the illuminating lamp to light on and off the illuminating lamp when the illuminating button is turned on.

15 In accordance with another object of the present invention, there is provided a cellular phone with lamps, the cellular phone having a cover for opening and closing a key pad mounted thereon being coupled to the body via a hinge, wherein the cellular phone with lamps comprises an illuminating lamp for lighting the key pad, a cover open/close detecting unit for detecting whether the
20 cover is opened or closed, a power supply unit for supplying a power to the illuminating lamp, and a control unit for supplying the power to the illuminating lamp to light on and off the illuminating lamp when it is discriminated by the cover open/close detecting unit that the cover is opened.

BRIEF DESCRIPTION OF THE DRAWINGS

25 For fuller understanding of the nature and object of the invention, reference should be made to the following detailed description taken in

conjunction with the accompanying drawings in which:

Figure 1 is a perspective view for illustrating a cellular phone with lamps according to the present invention;

Figure 2 is a plan view for illustrating a cellular phone with lamps
5 according to the present invention;

Figure 3 is a perspective view for illustrating a cellular phone with lamps according to the present invention where its cover is open;

Figure 4 is a block diagram for illustrating a cellular phone with lamps according to the present invention;

10 Figures 5, 6 and 7 are a constitutional diagram for illustrating a cellular phone with lamps for use according to the present invention; and

Figure 8 is a block diagram for illustrating a cellular phone with lamps according another embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

15 Preferred embodiments of the present invention will now be described in detail with reference to the accompanying drawings.

Figure 1 is a perspective view for illustrating a cellular phone with lamps according to the present invention, Figure 2 is a plan view for illustrating a cellular phone with lamps according to the present invention and Figure 3 is a
20 perspective view for illustrating a cellular phone with lamps according to the present invention, where its cover is open.

As illustrated in Figures 1, 2 and 3, the cellular phone according to the present invention includes a body 10 which is in turn provided with a cover 12, a key pad 20 and a microphone 30. The cover 12 is mounted with a speaker 40
25 and a display unit 50, and is rotatably coupled to the body 10 via a hinge 18.

First illuminating lamps (14-1, 14-2, 14-3 and 14-4) are respectively arranged at a lower side and both sides of the cover 12 and at a lower corner

area of the body 10 for use as memorandum reading lamps. Although the present invention has described a cellular phone with a plurality of illuminating lamps, it should be noted that the present invention is not limited thereto but various changes and modifications can be embodiment to include at least one
5 lamp.

Furthermore, the body 10 is provided thereon with a second illuminating lamp 15 for use in an emergency and the hinge 18 is centrally mounted with a third illuminating lamp 19 for lighting the key pad 20. The body 10 is arranged at one side thereof with an illuminating button 16.

10 Meanwhile, Figure 4 is a block diagram for illustrating a cellular phone with lamps according to the present invention, where the cellular phone according to the present invention includes a first illuminating lamp 14, a second illuminating lamp 15, an illuminating button 16, a third illuminating lamp 19, a key pad 20, a microphone 30, a speaker 40, a display unit 50, a transceiver 60,
15 a cover open/close detecting unit 70, a power supply unit 80 and a control unit 90

The key pad 20 serves to input to the control unit 90 various operational signals and letter information for operating the cellular phone according to a user's manipulation, the microphone 30 serves to input to the transceiver 60 a
20 voice signal of the user according to control of the control unit 90, the speaker 40 reproduces a voice signal of the other party received through the transceiver 60 according to the control of the control unit 90 to thereafter output same, and the display unit 50 displays operational state of the cellular phone and various letter information according to the control of the control unit 90.

25 The transceiver 60 serves to communicate the other party via a radio relay station according to the control of the control unit 90 and the power supply unit 80 supplies a power necessary for operating the cellular phone.

Furthermore, the illuminating button 16 sends to the control unit 90 a signal for lighting on or off the first and second illuminating lamps 14 and 15 according to the manipulation of the user, and the cover open/close detecting unit 70 detects an open/close state of the cover 12 to send information thereof
5 to the control unit 90.

The control unit 90 communicatively controls the overall operations of the cellular phone according to various manipulated signals input through the key pad 20, supplies to the first illuminating lamp 14 the power supplied from the power supply unit 80 when the illuminating button 16 is turned on in a state
10 of the cover 12 being opened according to discrimination by the cover open/close detecting unit 70, to thereby light on the first illuminating lamp 14, and supplies to the second illuminating lamp 15 the power supplied from the power supply unit 80 when the illuminating button 16 is turned on in a state of the cover 12 being closed according to discrimination by the cover/close
15 detecting unit 70, to thereby light on the second illuminating lamp 15, and supplies power to the third illuminating lamp 19 when it is discriminated by the cover open/close detecting unit 70 that the cover 12 is opened, to thereby light on the third illuminating lamp 19.

Meanwhile, Figure 8 is a block diagram for illustrating a cellular phone
20 with lamps according to another embodiment of the present invention, where like reference numerals and symbols are used for designation of like or equivalent parts or portions as in Figure 4.

As illustrated in Figure 8, the cellular phone with lamps according to another embodiment of the present invention is further equipped with an
25 illuminance detecting unit 100 and other constructions are the same as those in Figure 4.

The illuminance detecting unit 100 serves to detect an illuminance to

input same to the control unit 90, where the control unit 90 does not light up the first, second and third illuminating lamps 14, 15 and 19 if the illuminance detected and input by the illuminance detecting unit 100 is above a pre-set up illuminance value.

5 Now, operational effect of the cellular phone with lamps according to the present invention thus constructed will be described in detail.

When a user opens the cover 12, the cover open/close detecting unit 70 detects it to send same to the control unit 90, and when the user turns on the illuminating button 16 in this state, the control unit 90 supplies to the first
10 illuminating lamp 14 the power supplied from the power supply unit 80 to light on the first illuminating lamp 14.

At this time, the control unit 90 supplies the power to the first illuminating lamp 14 only when the illuminating button 16 is turned on, and when the illuminating lamp 16 is turned on for a short period of time (by way of
15 example, 0.5 second) and then is turned on again for a little bit longer period of time (by way of example, 2 seconds), the control unit 90 continues to light on the first illuminating lamp 14 for a predetermined period of time (by way of example, 30 seconds).

Successively, when the first illuminating lamp 14 is lighted on and off,
20 the lamp 14 serves to function as a memorandum reading lamp in a dark area, as illustrated in Figure 5.

At this time, it should be noted that the first illuminating lamp 14 can be positioned at an appropriate portion of the cellular phone to make it easy for a user to read a memorandum in a dark place, and the first illustrating lamp 14 is
25 preferred to be installed at a lower corner portion of the body 10 to allow a user to communicate with the third party and to simultaneously check a memorandum.

Meanwhile, when the cover 12 is closed, the cover open/close detecting unit 70 detects it to send information thereof to the control unit 90, and when a user turns on the illuminating button 16 in this state, the control unit 90 supplies to the second illuminating lamp 15 the power supplied from the power supply unit 80, thereby lighting on the second illuminating lamp 15.

Successively, when the second illuminating lamp 15 is lighted on as mentioned above, the second illuminating lamp 15 functions as a flash light for use in an emergency, as illustrated in Figure 6.

Meanwhile, when a user opens the cover 12, the cover open/close detecting unit 70 detects it to send information thereof to the control unit 90, where the control unit 90 supplies to the third illuminating lamp 19 the power supplied from the power supply unit 80 to light on the third illuminating lamp 19 when the cover 12 is discriminated to be opened by the cover open/close detecting unit 70.

At this time, because the third illuminating lamp 19 is centrally positioned at the hinge 18, the key pad 20 is well lighted to allow a user to recognize and manipulate each button on the key pad 20 even in a dark place, as illustrated in Figure 7.

Meanwhile, in the cellular phone with lamps according to another embodiment of the present invention, the illuminance detecting unit 100 serves to detect an illuminance to input same to the control unit 90, where the control unit 90 does not light up the first, second and third illuminating lamps 14, 15 and 19 if the illuminance detected and input by the illuminance detecting unit 100 is above a pre-set illuminance value. In other words, if the illuminance detected and input by the illuminance detecting unit 100 is above the pre-set illuminance value, the control unit 90 does not light up the first and second illuminating lamps 14 and 15 even if the illuminating button 16 is pressed on,

and does not light up the third illuminating lamp 19 either even if it is detected that the cover is opened by the cover open/close detecting unit 70.

As apparent from the foregoing, there is an advantage in the cellular phone with lamps according to the present invention in that the cellular phone is
5 disposed with illuminating lamps for use in reading a memorandum and in outside lighting, there is another advantage in that one illuminating lamp is used to light an entire area of a key pad, thereby simplifying structure of the cellular phone and reducing thickness thereof. furthermore, there is still another advantage in that erroneous operation of illuminating lamps is prevented in
10 advance to thereby reduce power consumption as the illuminating lamps are not operated if an external illuminance is above a pre-set illuminance value.

WHAT IS CLAIMED IS:

1. A cellular phone with lamps, the cellular phone comprising:
 - a first illuminating lamp externally mounted thereon;
 - an illuminating button for lighting on and off the first illuminating lamp;
 - 5 a power supply unit for supplying a power to the first illuminating lamp;
 - a cover open/close detecting unit for discriminating whether a cover of the cellular phone is opened or closed; and
 - a control unit for supplying a power to the first illuminating lamp to light on and off the first illuminating lamp when the illuminating button is turned on
 - 10 in a state of the cover being discriminated as being opened by the cover open/close detecting unit
2. The cellular phone with lamps as defined in claim 1, wherein the control unit continues to light on the first illuminating lamp for a predetermined period of time when the illuminating button is turned on for a short period of time and
- 15 then is turned on a for a little bit longer period of time.
3. The cellular phone with lamps as defined in claim 1, wherein the first illuminating lamp is mounted on a lower corner portion of a body of the cellular phone.
4. The cellular phone with lamps as defined in claim 1, wherein the phone
- 20 further comprises a second illuminating lamp, and the control unit supplies a power to the second illuminating lamp to light on the second illuminating lamp when the illuminating button is turned on while the cover is discriminated as being closed by the cover open/close detecting unit.
5. The cellular phone with lamps as defined in claim 1, wherein the phone
- 25 further comprises a third illuminating lamp for lighting a key pad mounted thereon, and the control unit supplies a power to the third illuminating lamp to light on the third illuminating lamp when it is discriminated by the cover

open/close unit that the cover is closed.

6. The cellular phone with lamps as defined in claim 1, wherein the phone further comprises an illuminance detecting unit for detecting an illuminance, and the control unit does not light up the illuminating lamps if the illuminance detect
5 by the illuminance detecting unit is above a pre-set illuminance value.

7. A cellular phone with lamps having a cover for opening and closing a key pad mounted on a body of the cellular phone, coupled to the body via a hinge, wherein the cellular phone comprises:

an illuminating lamp for lighting the key pad;
10 a cover open/close detecting unit for discriminating whether the cover is opened or closed;
a power supply unit for supplying a power to the illuminating lamp; and
a control unit for supplying the power to the illuminating lamp to thereby
light on the illuminating lamp when it is discriminated by the cover open/close
15 detecting unit that the cover is opened.

8. The cellular phone with lamps as defined in claim 7, wherein the illuminating lamp is centrally provided at the hinge.

20 9. A cellular phone with lamps substantially as hereinbefore described with reference to Figures 1 to 7 of the accompanying drawings.

10. A cellular phone with lamps substantially as hereinbefore described with reference to Figure 8 of the accompanying drawings.

Amendments to the claims have been filed as follows

WHAT IS CLAIMED IS:

1. A cellular phone with lamps, the cellular phone comprising:
 - a first illuminating lamp externally mounted thereon;
 - an illuminating button for lighting on and off the first illuminating lamp;
 - a power supply unit for supplying power to the first illuminating lamp;
 - a cover open/close detecting unit for discriminating whether a cover of the cellular phone is opened or closed;
 - a control unit for supplying power to the first illuminating lamp to light on and off the first illuminating lamp when the illuminating button is turned on in a state of the cover being detected as being opened by the cover open/close detecting unit; and
 - the first illuminating lamp serving as a memorandum reading lamp to allow a user to communicate with a third party and simultaneously to check a memorandum.
2. The cellular phone with lamps as claimed in claim 1, wherein the control unit continues to light the first illuminating lamp for a predetermined period of time when the illuminating button is turned on for a short period of time and then is turned on for a little longer period of time.
3. The cellular phone with lamps as claimed in claim 1, wherein the first illuminating lamp is mounted on a lower corner portion of a body of the cellular phone.
4. The cellular phone with lamps as claimed in claim 1, and further comprising a second illuminating lamp, and the control unit supplies power to the second illuminating lamp to light the second illuminating lamp when the illuminating button is turned on and while the cover is discriminated as being closed by the cover open/close detecting unit.
5. The cellular phone with lamps as claimed in claim 1, and further comprising a third illuminating lamp for lighting a key pad mounted on a body of the cellular phone, and the control unit supplies power to the third illuminating lamp to light on the third illuminating

lamp when it is discriminated by the cover open/close detecting unit that the cover is open.

6. The cellular phone with lamps as claimed in claim 1, and further comprising an illuminance detecting unit, and the control unit does not light up the illuminating lamps if the illuminance detected by the illuminance detecting unit is above a pre-set illuminance value.

7. The cellular phone with lamps as claimed in claim 5, wherein the cover for opening and closing the key pad is coupled to the body of the cellular phone via a hinge, wherein a power supply unit supplies power to the third illuminating lamp; and wherein the third illuminating lamp is centrally provided at the hinge.

8. A cellular phone with lamps substantially as hereinbefore described with reference to Figures 1 to 7 of the accompanying drawings.

9. A cellular phone with lamps substantially as hereinbefore described with reference to Figures 1 to 7 as modified by Figure 8 of the accompanying drawings.



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Claims searched: 1-6, 9,10

Examiner: Owen Wheeler
Date of search: 1 September 1999

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:
UK CI (Ed.Q): H4J (JK)
Int CI (Ed.6): H04B: 1/034, 1/08, 1/38; H04M: 1/02, 1/21, 1/22
Other: Online: WPI, EPODOC, JAPIO

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
Y	JP100215302 A [NEC] See abstract.	1
Y	JP 090062198 A [SANYO] See abstract.	1
Y	JP 050130193 A [SONY] See abstract.	1

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.

